

# Device/User Interface Software Requirements For HP 3325B Synthesizer

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## 1.0 Introduction

This document provides device and user interface requirements for the HP 3325B Synthesizer/Function Generator.

## 2.0 Required Functionality

The HP 3325B Synthesizer/Function Generator produces sine wave, square wave, triangle waveforms and positive and negative ramp waveforms within the given limits.

This Device is used to set the reference frequency for the tape recorders. TTL will be supplied to the digital recorders and sine wave will be supplied to the analog recorders.

The HP 3325B Synthesizer is a device within the Data Handling Node.

## 3.0 Parameter Ranges

The SGS-AGS requirements are limited to the functions listed in section 2.0 above and in appendix A. These functions for HP 3325B Synthesizer/Function Generator are described in HP 3325B Synthesizer/Function Generator Operating Manual.

## 4.0 Communications Protocol

The RS-232 protocol will be used to communicate with HP 3325B Synthesizer/Function Generator from the node computer.

## 5.0 GUI Functionality

See Appendix A: Graphical User Interface Requirements

## 6.0 Command Scripting

See Appendix B: Scripting Requirements

## 7.0 High-level Status

High level status will be determined by viewing the already set frequency.

## 8.0 Replacement Algorithm

On any bad status, the Master will determine if the error occurred in the HP 3325B Synthesizer and if so, operations will be notified to investigate the reason for the bad status and fix or replace the unit accordingly.

## Appendix A: Graphical User Interface Requirements

The user will be able to access the following remote controllable features required to operate a HP 3325B Synthesizer/Function Generator. The following inputs within the prescribed limits will be available to the user.

### **WAVEFORM FUNCTION :**

The user will be able to select from any one of the three below waveform functions. The user will also be able to view the selection made.

Function off (dc only)

Sine Wave (**default**)

Square Wave

### **HIGH VOLTAGE OPTION:**

The User will be able to select/monitor the high voltage output on the instruments with high voltage option.

### **FREQUENCY:**

The user will be able to enter/monitor the frequency value and unit. (**default is 1kHz**)

### **DC OFFSET:**

The user will be able to enter/monitor the DC Offset value and unit.

**(default = 0 Volts, value will not exceed -5.0 Volts to +5.0 Volts)**

### **AMPLITUDE:**

The user will be able to enter/monitor the amplitude value and unit. (**default is .001 Volts**)

### **RESET:**

The user will be able to reset the HP 3325B to its initial power on state. (ie.the system will load its default values for all the above functions). This function is same as preset function.

### **INSTRUMENTAL CALIBRATION:**

The user will be able to perform either of the following:

Perform an amplitude calibration whenever the waveform function is changed. (**default**)

Perform an amplitude calibration on all functions immediately. Will not recalibrate when waveform function is changed.

### **CALIBRATION:**

The user will be able to perform an amplitude calibration.

### **SELF-TEST:**

The user will be able to perform self-test.

## Appendix B: Scripting Requirements

Master	Node	Comments/Error Handling
Resource Request Specific Parameter: unit number	<p>Start</p> <p>Check allocation table for unit number</p> <p>If available then</p> <ul style="list-style-type: none"> <li>Mark unit as assigned to this Master</li> <li>Reply "Unit # assigned"</li> <li>Open log file</li> <li>Retrieve configuration file from this Master</li> </ul> <p>Else</p> <ul style="list-style-type: none"> <li>Reply "Unit # not available"</li> </ul> <p>End</p> <p>Stop</p>	
Resource Request General	<p>Start</p> <p>Check allocation table for an available unit using the least recently used method</p> <p>If available then</p> <ul style="list-style-type: none"> <li>Mark unit as assigned to this Master</li> <li>Reply "Unit # assigned"</li> <li>Open log file</li> <li>Retrieve configuration file from this Master</li> </ul> <p>Else</p> <ul style="list-style-type: none"> <li>Reply "No units available"</li> </ul> <p>End</p> <p>Stop</p>	
Setup Parameter: unit number	<p>Start</p> <p>Verify possession of unit by this Master</p>	

<b>Master</b>	<b>Node</b>	<b>Comments/Error Handling</b>
	<p>If not assigned to this Master then            Inform this Master            Stop            End</p> <p>Load and Verify configuration file</p> <p>If configuration file error then            Inform this Master            Stop            End</p> <p>Stop</p>	>> Operator intervention required  >> Operator intervention required
Start Support Parameter: unit number	<p>Start</p> <p>Verify possession of unit by this Master</p> <p>If not assigned to this Master then            Inform this Master            Stop            End</p> <p>Stop</p>	>> Operator intervention required
Stop Support Parameter: unit number	<p>Start</p> <p>Verify possession of unit by this Master</p> <p>If not assigned to this Master then            Inform this Master            Stop            End</p> <p>Stop</p>	>> Operator intervention required
Takedown Parameter: unit number	<p>Start</p> <p>Verify possession of unit by this Master</p>	

<b>Master</b>	<b>Node</b>	<b>Comments/Error Handling</b>
	<p>If not assigned to this Master then</p> <p>    Inform this Master</p> <p>    Stop</p> <p>End</p> <p>    Mark unit as not assigned</p> <p>    Close log file</p> <p>    Send log file to this Master</p> <p>Stop</p>	>> Operator intervention required